# METHOD OF DECREASING CHARGING EFFECTS IN OXIDE-NITRIDE-OXIDE (ONO) MEMORY ARRAYS

Micha Gutman
Yakov Roizin
Menachem Vofsy
Efraim Aloni
Avi Ben-Gigi
Fumihiko Noro
Masatoshi Arai
Nobuyoshi Takahashi
Koji Yoshida

ABSTRACT

A fieldless array includes a semiconductor substrate, a plurality of oxide-nitride-oxide (ONO) structures formed over the upper surface of the semiconductor substrate, and a plurality of word lines formed over the ONO structures, wherein each of the ONO structures is substantially covered by one of the word lines. The word lines (typically polysilicon) block UV irradiation during subsequent processing steps, thereby substantially preventing electrons from being trapped in the silicon nitride layer of the ONO structure. As a result, the threshold voltages of the fieldless array transistors do not severely increase as the width of the fieldless array transistors decrease.